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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/695,214	10/28/2003	Hiroaki S. Hara	6872-0001-1	4508

7590 02/08/2007  
McCormick, Paulding & Huber LLP  
CityPlace II  
185 Asylum Street  
Hartford, CT 06103

EXAMINER
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CHU, HELEN OK

ART UNIT	PAPER NUMBER
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1745

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/08/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

# Office Action Summary

Application No.

10/695,214

Applicant(s)

HARA ET AL.

Examiner

Helen O. Chu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 13 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 11/13/2006.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

### DETAILED ACTION

1. The Applicant's Argument/Remarks have been received on November 13, 2006. Claims 1, 3-12, 14-16 have been amended.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

### *Priority*

Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Application No. 60/343,700, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Accordingly, claims 1-10 are not entitled to the benefit of the prior application. Application 60/343,700 does not disclose metal atoms in a form of crystals disclosed in the specification. Furthermore it does not have metal atoms in forms of crystals of 1nm to 4nm in diameter. Claims 11-

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16 are dependent on claim 1, claims 11-16 will not be entitled to the benefits of the prior application.

The disclosure of the prior-filed application, Application No. 60/390,174, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Accordingly, claim 1 is not entitled to the benefit of the prior application. Application 60/390,174 does not disclose metal atoms of 1nm to 4nm in diameter. Specifically the application does not disclose a diameter with an upper limit of 4 nm in the specification. Claims 2-16 are dependent on claim 1, therefore, claims 2-16 will not be entitled to the benefits of the prior application.

The disclosure of the prior-filed application, Application No. 60/412,755, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Accordingly, claim 1 is not entitled to the benefit of the prior application. Application 60/412,755 does not disclose metal atoms of 1nm to 4nm in diameter. Specifically the application does not disclose a diameter with an upper limit of 4 nm in the specification. Claims 2-16 are dependent on claim 1, therefore, claims 2-16 will not be entitled to the benefits of the prior application.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The rejections under 35 U.S.C 112, second paragraph, on claims 1-12, 14-16 are withdrawn because Applicant has amended the claims

5. Claims 11 and 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The recitations "said catalyst is for a cathode catalyst" and "said catalyst is for an anode catalyst" is unclear to the Examiner. The recitations can be interpreted as said catalyst is for another layer of cathode or anode catalyst. More specifically, there are two catalyst layers and said catalyst to for another anode or cathode catalyst layer. For purposes of compact prosecution, the Examiner will interpret the claims to read "said catalyst is for a cathode (or an anode) and said catalyst has a pore size"

***Claim Rejections - 35 USC § 102***

6. The rejections under 35 U.S.C 102(e), on claims 1,2, 11-16, as anticipated by Hampden-Smith et al. are maintained. The rejection is repeated below for convenience.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1, 2, and 11-16 rejected under 35 U.S.C. 102(e) as being anticipated by Hampden-Smith et al. (US Publication 2003/0198849 A1).

In regards to claim 1 and 11-13, the Hampden-Smith et al. reference teaches a fuel cell (Paragraph 3, Line 4) with an anode and a cathode that comprises mainly of

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electrocatalyst such as platinum or platinum group metals. The clusters or crystallites (Paragraph 102, Line 4) platinum are active species that are supported and dispersed on a conductive support such as carbon (Paragraph 266, Lines 1-6). The carbon support can be an aerogel (Paragraph 102, Line 8) with a surface area ranging from 700 m<sup>2</sup>/g to 1400 m<sup>2</sup>/g (Table 1) and pore sizes ranging from 30 to 55 nm (which is greater than Applicant's limitation of 4nm or 15nm; Paragraph 196) dependent on the carbon used. The Hampden-Smith et al. discloses the average size of the active species is about 3 nm (Paragraph 122, Lines 9).

In regards to claim 2, the Hampden-Smith et al reference discloses the carbon particles supporting the dispersed active species phase typically do not exist as discrete particles but tend to associate to form structures that contain a number of discrete particles (Paragraph 102, Lines 14-17).

In regards to claims, 14-16, the Hampden-Smith et al reference discloses the aggregate electrocatalyst particles preferably include a carbon support phase, more preferably at least about 1 weight percent active species phase, more preferably at least about 5 weight percent active species phase and another embodiment of 20-80 wt % of the active species phase (Paragraph 121, Lines 4-11).

***Claim Rejections - 35 USC § 103***

8. The rejections under 35 U.S.C 103(a), on claims 3-10, as unpatentable over Hampden-Smith et al. are maintained. The rejection is repeated below for convenience.

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9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 3-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hampden-Smith et al.

The Hampden-Smith et al. reference teaches the elements of claims 1, 2, and 11-16 above and incorporates herein. The disclosure of Hampden-Smith et al. reference differs from the Applicant's claims in that the Hampden-Smith et al. do not disclose the specific ranges of dispersion rate and active surface area. However, Hampden-Smith et al recognizes that high surface area combined with dispersion rate of the active species generally leads to increased catalytic activity in an energy device (Paragraph 120, Lines 10-14. Therefore, it would have been obvious to one of the ordinary skill in the art at the time of the invention to choose the claimed range of dispersion rate and surface area through process optimization, since it has been held that the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable values involve only routine skill in the art. See *In re Boesch*, 205 USPQ 215 (CCPA 1980).

### ***Response to Arguments***

11. Applicant's arguments filed 11/13/2006 have been fully considered but they are not persuasive.

Applicant's principal arguments are:

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a. The filing date of the Hampden-Smith Publication is October 24, 2002 which post-dates the current application's US priority date. Thus, the Hampden-Smith Publication is not section 102 (e) art.

b. The cited Hampden-Smith Publication is a continuation-in-part of Application Serial No. 09/815,380 filed on March 22, 2001, and issued as US Patent 6,967,183 on November 22, 2005. Applicants submit that the invention claimed in the present application is not disclosed on the '183 Hampden-Smith Patent.

In response to Applicant's arguments please consider the following.

a. The filing date of Hampden-Smith Publication has a 102(e) date. Please refer to "Priority" section for more details

b. The rejection of the Office Action dated 5/8/2006 uses Hampden-Smith Publication 2003/0198849 as prior art over Applicant's claimed invention.

Hampden-Smith application 09/815,380, now a US Patent 6,967,183, was never used as the prior art, therefore, the arguments referring to Hampden-Smith APP 09/815,380 are moot because the Applicants did not argue the rejections using Publication 2003/0198849.

### ***Conclusion***

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within



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TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
TRACY DOVE  
PRIMARY EXAMINER